REMARKS

In the Office Action, the Examiner objected to certain language in claim 1. The Examiner also rejected claims 1, 2, 4-9, and 11-14 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication 2002/0016901 of applicants Carvey et al ("Carvey"). In this Amendment,

5   Applicants have amended claims 1, 2, 8, and 9 to address the Examiner's objection to the language of claim 1. Applicants have also amended claims 4, 6, 11, and 13 to correct certain informalities in these claims. Applicants have also added new claims 15-24. Accordingly, claims 1-24 will be pending after entry of this Amendment.

I.   Objection to the Drawings

10 In the Notice of Draftsperson that accompanied the Office Action, the draftperson objected to various informalities in the drawings. Accordingly, accompanying this Amendment are fifty-nine (59) sheets of formal drawings. In these drawings, Applicants have corrected various informalities noted by the draftsperson. One of these informalities included fixing the figure legend in the in Figure 59A per the draftsperson's objection. Also, in the formal drawings,

15 Applicants have modified Figures 28B, 29B, 31B, and 53B to identify the source of the incoming arrows into the flowcharts illustrated in these figures. No new matter has been added as these changes are supported by the specification and the other figures. Applicants have attached five (5) redlined sheets of drawings that show the revisions to Figures 28B, 29B, 31B, 53A, and 53B in red ink.

20 II.   Objection to Claim 1

In the Office Action, the Examiner objected to claim 1 for stating "if the intersection is sufficiently large, adding the potential via expansion to the specified set of path expansions." In response, Applicants have amended claims 1, 2, 8, and 9 to replace the phrase "sufficiently large"

with the more precise phrase "larger than a threshold area." In view of these amendments, Applicants request reconsideration and withdrawal of the objection to claim 1.

III.   Rejection of the Claims 1, 2, 4-9, and 11-14 Under § 102(e)

In the Office Action, the Examiner rejected claims 1, 2, 4-9, and 11 under § 102(e) as being anticipated by Carvey. Applicants respectfully traverse these rejections.

A.   Claims 1-7

Claims 1-7 recite methods for generating a multi-layer topological path. The method of claim 1 specifies a set of path expansions from a first topological item to a second topological item on a first layer of the layout. For a potential via expansion from the second topological item to a third topological item on a second layer of the layout, the method then identifies a first region on the first layer for the second topological item and a second region on the second layer for the third topological item. This method determines whether an intersection of the first and second regions is larger than a threshold area. If the intersection is larger than the threshold area, the method adds the potential via expansion to the specified set of path expansions.

Carvey does not disclose, teach, or even suggest a method that generates a multi-layer topological path in the manner recited in claim 1. Specifically, Carvey does not disclose, teach, or even suggest:

- specifying a set of path expansions from a first topological item to a second topological item on a first layer of the layout, and then

- determining whether to add a potential via expansion from the second topological item to a third topological item on a second layer of the layout by (1) intersecting a first region on the first layer for the second topological item and a second region on the second layer for the third topological item, and

(2) determining whether an intersection of the first and second regions is larger than a threshold area.

Applicants respectfully submit that the passages in Carvey cited by the Examiner do not disclose, teach, or even suggest the limitations of claim 1. If the Examiner believes that Carvey discloses, teaches, or even suggests these limitations, Applicants respectfully request that the Examiner specifically identify, in the Carvey disclosure, the two regions for the second and third topological items. Applicants also respectfully request that the Examiner identify the passages in Carvey that discuss (1) intersecting these two regions, (2) determining whether the intersection of these two regions is larger than a threshold area, and (3) adding a via expansion to a set of previously defined expansions when the intersection is larger that the threshold area.

Claims 2 and 4-7 are dependent on claim 1. Hence, Applicants respectfully submit that these claims are patentable over Carvey for the same reasons as described above for claim 1.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the § 102(e) rejections of claims 1, 2, and 4-7.

B.   Claims 8-14

Claims 8-14 recite a computer program that generating a multi-layer topological path. The computer program of claim 8 specifies a set of path expansions from a first topological item to a second topological item on a first layer of the layout. For a potential via expansion from the second topological item to a third topological item on a second layer of the layout, the computer program then identifies a first region on the first layer for the second topological item and a second region on the second layer for the third topological item. This computer program determines whether an intersection of the first and second regions is larger than a threshold area. If the intersection is larger than the threshold area, the computer program adds the potential via expansion to the specified set of path expansions.

Carvey does not disclose, teach, or even suggest a computer program that generates a multi-layer topological path in the manner recited in claim 8. Specifically, Carvey does not disclose, teach, or even suggest:

- specifying a set of path expansions from a first topological item to a second topological item on a first layer of the layout, and then

- determining whether to add a potential via expansion from the second topological item to a third topological item on a second layer of the layout by (1) intersecting a first region on the first layer for the second topological item and a second region on the second layer for the third topological item, and (2) determining whether an intersection of the first and second regions is larger than a threshold area.

Applicants respectfully submit that the passages in Carvey cited by the Examiner do not disclose, teach, or even suggest the limitations of claim 8. If the Examiner believes that Carvey discloses, teaches, or even suggests these limitations, Applicants respectfully request that the Examiner specifically identify, in the Carvey disclosure, the two regions for the second and third topological items. Applicants also respectfully request the Examiner to identify the passages in Carvey that discuss (1) intersecting these two regions, (2) determining whether the intersection of these two regions is larger than a threshold area, and (3) adding a via expansion to a set of previously defined expansions when the intersection is larger that the threshold area.

Claims 9 and 11-14 are dependent on claim 8. Hence, Applicants respectfully submit that these claims are patentable over Carvey for the same reasons as described above for claim 8.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the § 102(e) rejections of claims 8, 9, and 11-14.

IV.   New Claims 15-24

In this Amendment, Applicants have added new method claims 15-19 and new computer readable medium claims 20-24. In these claims, claims 15 and 20 are independent claims, claims 16-19 are directly or indirectly dependent on claim 15, and claims 21-24 are directly or indirectly

5   dependent on claim 20.

The method claims 15-19 recite methods for generating a multi-layer topological path for an integrated circuit layout that has multiple layers. Applicants respectfully submit that Carvey does not disclose, teach, or even suggest such a method as Carvey's disclosure relates to connecting multiple chip modules. In addition, Carvey does not disclose, teach, or even suggest

10   the recited method of claim 15, which

- identifies a set of path expansions from a first topological item to a second topological item on a first layer of the layout;

- identifies a first region on the first layer for the second topological item and a second region on the second layer for a third topological item that is reachable

15   from the second topological item through a via expansion;

- determines whether an intersection of the first and second regions is larger than a threshold area; and

- adds the potential via expansion to the specified set of path expansions when the intersection is larger than the threshold area.

20   The computer readable medium of claims 20-24 stores a computer program that generates a multi-layer topological path for an integrated circuit layout that has multiple layers. Applicants respectfully submit that Carvey does not disclose, teach, or even suggest such a medium as Carvey's disclosure relates to connecting multiple chip modules. In addition, Carvey does not disclose, teach, or even suggest the recited medium of claim 20, which includes a program that:

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- identifies a set of path expansions from a first topological item to a second topological item on a first layer of the layout;

- identifies a first region on the first layer for the second topological item and a second region on the second layer for a third topological item that is reachable from the second topological item through a via expansion;

- determines whether an intersection of the first and second regions is larger than a threshold area; and

- adds the potential via expansion to the specified set of path expansions when the intersection is larger than the threshold area.

CONCLUSION

In view of the foregoing, it is submitted that all pending claims, namely claims 1-24, are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date.

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Respectfully submitted,

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Dated: 1/14/04

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Attny Docket:SPLX.P0081
PTO Serial Number:10/076,121